hVNO-R1 nucleotide sequence

ATTCCAGATCATAGAGATGTTGAAATTGGTTATTATTGAGAACATGGCAG
AAATTATGCTATTCTCATTAGATCTCTTGCTTTTCTCCACAGATATCCTT
TGCTTTAATTTTCCTTCTAAGATGATCAAACTTCCTGGTTTTATTACCAT
ACAAATCTTCTTTTATCCACAAGCCAGCTTTGGAATTTCAGCAAACACCA
TCCTTCTTCTTTTCCACATCTTCACCTTTGTTTTCAGTCACAGGTCTAAG
TCCATTGACATGATAATTAGTCACCTGTCTCTCATCCACATACTGCTGCT
CTTCACTCAGGCAATATTGGTGTCCTTAGACTTCTTTGGTTCACAGAATA
CTCAGGATGATCTTAGGTATAAGGTCATTGTCTTTTTAAACAAGGTGATG
AGGGGCCTCTCCATCTGCACCCCCTGCCTCCTGAGTGTGCTCCAGGCCAT
CATCAGCCCCAGCATCTTCTCCTTGGCAAAGCTCAAACATCCTTCTGCAA
GTCACATCTTAGGATTCTTCCTTTTCTCATGGGTCCTCAACATGTTCATT
GGTGTAATCTTCTGCTGTACACTGCGGCTACCCCCAGTGAAACGGGGCCA
GTCTTCTGTTTGTCATACAGCACTGTTCCTTTTTGCCCATGAGCTACACC
CACAGGAGACTGTTTTTCACACTAATGACTTTGAGGGATGTCACCTTTAT
AGGGTTCATGGTCCTCTCAAGAGGCTACATGGTGATTATTTTATACAGAC
AATAAGAGGCTATCTCAGTGCCTTCACGCAGCCAGCCTGTCCCCGAGTCT
CACCAGTGAAAAGAGCCTCCCAGGCTATCTTACTGCTGGTGAGTTTTGTC
TTCACATACTGGGTGGACTTTACGTTCTCATTTTCAGGAGGTGTGACATG
GATAAATGATTCTCTGCTAGTGTGGCTCCAGGTTATTGTGGCCAATAGCT
ATGCCGCAATTAGTCCTTTGATGCTAATTTATGCTGATAACCAAATATTC
AAGACTCTGCAAATGTTATGGTTTAAATATTTGTCTCCTCCAAAGCTCAT
GTTGAAATTTAATCGCCAATGTGGCAGTACTAAGAAGTGATGATGAGAGG
TTAATCCATTCATG

Figure 1

hVNO-R1 amino acid sequence (long form)
(translated using first in-frame ATG)

MLKLVIIENMAEIMLFSLDLLLFSTDILCFNFPSKMIKLPGFITIQIFFY
PQASFGISANTILLLFHIFTFVFSHRSKSIDMIISHLSLIHILLLFTQAI
LVSLDFFGSQNTQDDLRYKVIVFLNKVMRGLSICTPCLLSVLQAIISPSI
FSLAKLKHPSASHILGFFLFSWVLNMFIGVIFCCTLRLPPVKRGQSSVCH
TALFLFAHELHPQETVFHTNDFEGCHLYRVHGPLKRLHGDYFIQTIRGYL
SAFTQPACPRVSPVKRASQAILLLVSFVFTYWVDFTFSFSGGVTWINDSL
LVWLQVIVANSYAAISPLMLIYADNQIFKTLQMLWFKYLSPPKLMLKFNR
QCGSTKK

Figure 2

hVNO-R1 amino acid sequence (short form)
(translated using second in-frame ATG)

MAEIMLFSLDLLLFSTDILCFNFPSKMIKLPGFITIQIFFYPQASFGISA
NTILLLFHIFTFVFSHRSKSIDMIISHLSLIHILLLFTQAILVSLDFFGS
QNTQDDLRYKVIVFLNKVMRGLSICTPCLLSVLQAIISPSIFSLAKLKHP
SASHILGFFLFSWVLNMFIGVIFCCTLRLPPVKRGQSSVCHTALFLFAHE
LHPQETVFHTNDFEGCHLYRVHGPLKRLHGDYFIQTIRGYLSAFTQPACP
RVSPVKRASQAILLLVSFVFTYWVDFTFSFSGGVTWINDSLLVWLQVIVA
NSYAAISPLMLIYADNQIFKTLQMLWFKYLSPPKLMLKFNRQCGSTKK

Figure 3

hVNO-R1 amino acid sequence (long form) with seven theoretical transmembrane domains indicated:

```
                          TM1
  1  MLKLVIIENMAEIMLFSLDLLLFSTDILCFNFPSKMIKLPGFITIQIFFY
                TM2                                TM3
 51  PQASFGISANTILLLFHIFTFVFSHRSKSIDMIISHLSLIHILLLFTQAI
                                                   TM4
101  LVSLDFFGSQNTQDDLRYKVIVFLNKVMRGLSICTPCLLSVLQAIISPSI
                              TM5
151  FSLAKLKHPSASHILGFFLFSWVLNMFIGVIFCCTLRLPPVKRGQSSVCH

201  TALFLFAHELHPQETVFHTNDFEGCHLYRVHGPLKRLHGDYFIQTIRGYL
                                   TM6
251  SAFTQPACPRVSPVKRASQAILLLVSFVFTYWVDFTFSFSGGVTWINDSL
                TM7
301  LVWLQVIVANSYAAISPLMLIYADNQIFKTLQMLWFKYLSPPKLMLKFNR

351  QCGSTKK
```

Figure 4

hVNO-R1 nucleotide sequence (clone pp166)
(alternative sequence with a natural null mutation,
useful for diagnostic application)

```
   1    ATGTTGAAAT TGGTTATTAT TGAGAACATG GCAGAAATTA TGCTATTCTC
  51    ATTAGATCTC TTGCTTTTCT CCACAGATAT CCTTTGCTTT AATTTTCCTT
 101    CTAAGATGAT CAAACTTCCT GGTTTTATTA CCATATAAAT CTTCTTTTAT
 151    CCACAAGCCA GCTTTGGAAT TTCAGCAAAC ACCATCCTTC TTCTTTTCCA
 201    CATCTTCACC TTTGTTTTCA GTCACAGGTC TAAGTCCATT GACATGATAA
 251    TTAGTCACCT GTCTCTCATC CACATACTGC TGCTCTTCAC TCAGGCAATA
 301    TTGGTGTCCT TAGACTTCTT TGGTTCACAG AATACTCAGG ATGATCTTAG
 351    GTATAAGGTC ATTGTCTTTT TAAACAAGGT GATGAGGGGC CTCTCCATCT
 401    GCACCCCCTG CCTCCTGAGT GTGCTCCAGG CCATCATCAG CCCCAGCATC
 451    TTCTCCTTGG CAAAGCTCAA ACATCCTTCT GCAAGTCACA TCTTAGGATT
 501    CTTCCTTTTC TCATGGGTCC TCAACATGTT CATTGGTGTA ATCTTCTGCT
 551    GTACACTGCG GCTACCCCCA GTGAAACGGG GCCAGTCTTC TGTTTGTCAT
 601    ACAGCACTGT TCCTTTTTGC CCATGAGCTA CACCCACAGG AGACTGTTTT
 651    TCACACTAAT GACTTTGAGG GATGTCACCT TTATAGGGTT CATGGTCCTC
 701    TCAAGAGGCT ACATGGTGAT TATTTTATAC AGACAATAAG AGGCTATCTC
 751    AGTGCCTTCA CACAGCCAGC CTGTCCCCGA GTCTCACCAG TGAAAAGAGC
 801    CTCCCAGGCT ATCTTACTGC TGGTGAGTTT TGTCTTCACA TACTGGGTGG
 851    ACTTTACGTT CTCATTTTCA GGAGGTGTGA CATGGATAAA TGATTCTCTG
 901    CTAGTGTGGC TCCAGGTTAT TGTGGCCAAT AGCTATGCCG CAATTAGTCC
 951    TTTGATGCTA ATTTATGCTG ATAACCAAAT ATTCAAGACT CTGCAAATGT
1001    TATGGTTTAA ATATTTGTCT CCTCCAAAGC TCATGTTGAA ATTTAATCGC
1051    CAATGTGGCA GTACTAAGAA GTGATGA
```

Figure 5